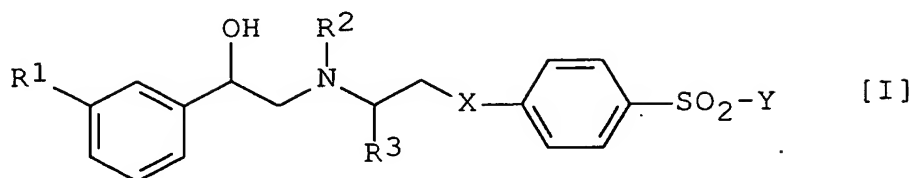


C L A I M S

1. A compound of the formula [I]:



10 wherein

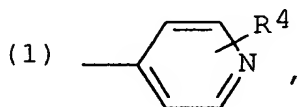
R^1 is hydrogen or halogen,

R^2 is hydrogen or an amino protective group,

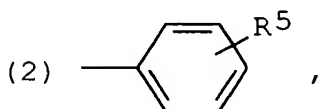
R^3 is hydrogen or lower alkyl,

X is bond, $-CH_2-$ or $-O-$, and

15 Y is



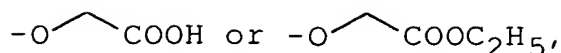
in which R^4 is lower alkoxycarbonyl,



in which R^5 is carboxy(lower)alkyl, (lower
25 alkoxy)carbonyl(lower)alkyl, lower alkanoyl, mono(or
di or tri)halo(lower)alkylsulfonyloxy,
carboxyphenoxy, (lower alkoxy)carbonylphenoxy,
carboxypyridyloxy, (lower alkanoyl)pyridyl,
carboxypyrrolidinyl(lower)alkyl, (lower
30 alkoxy)carbonylpyrrolidinyl(lower)alkyl,
carboxyphenyl or (lower alkyl)phenyl,



35 in which R^6 is $-OH$, $-COOH$, $-COOC_2H_5$,

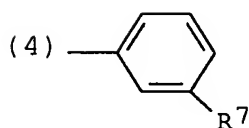
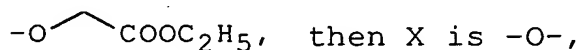


provided that (i) when R^6 is $-\text{OH}$, then X is $-\text{CH}_2-$,

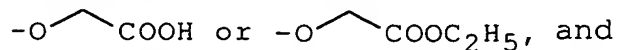
(ii) when R^6 is $-\text{COOH}$, then R^1 is $-\text{H}$,

or

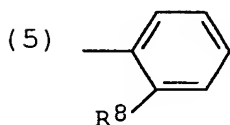
(iii) when R^6 is $-\text{COOC}_2\text{H}_5$, $-\text{O}-\text{CH}_2-\text{COOH}$ or



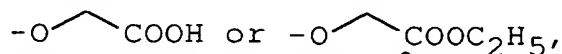
in which R^7 is $-\text{OH}$, $-\text{COOH}$, $-\text{COOC}_2\text{H}_5$,



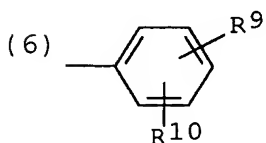
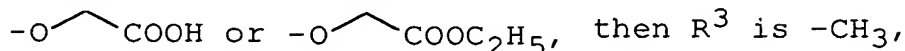
X is $-\text{CH}_2-$,



in which R^8 is $-\text{OH}$, $-\text{COOH}$, $-\text{COOC}_2\text{H}_5$,

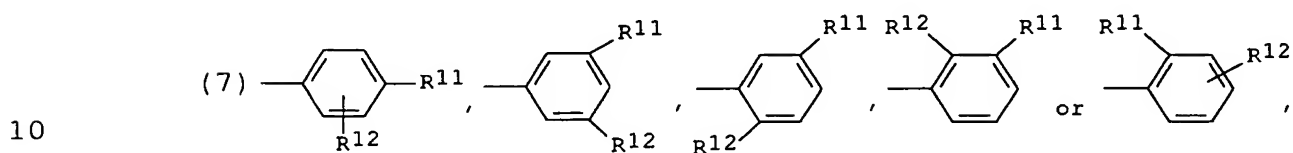


provided that when R^8 is $-\text{OH}$,

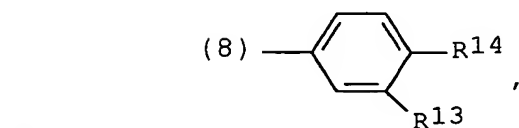


in which R^9 is hydroxy, cyclo(lower)alkyl, mono(or di or tri)halo(lower)alkyl, hydroxy(lower)alkoxy, lower alkoxy(lower)alkoxy, carboxy(lower)alkoxy, lower alkoxycarbonyl(lower)alkoxy, phenoxy, nitro, amino, lower alkylamino, [lower alkoxy(lower)alkyl]amino, [hydroxy(lower)alkyl]amino, [lower alkoxycarbonyl]amino, lower alkanoylamino, [hydroxy(lower)alkanoyl]amino, benzoylamino, (lower alkylsulfonyl)amino, lower alkylthio or phenyl, and

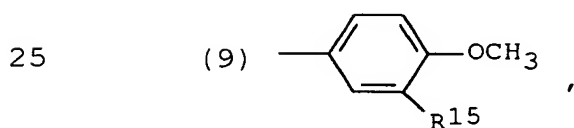
R^{10} is carboxy, lower alkanoyl, lower alkoxy-carbonyl, carbamoyl, lower alkylcarbamoyl, carboxy(lower)alkyl, (lower alkoxy-carbonyl)(lower)alkyl, carboxy(lower)-alkenyl, (lower alkoxy-carbonyl)(lower)alkenyl or phenyl optionally substituted with carboxy or lower alkoxy-carbonyl,



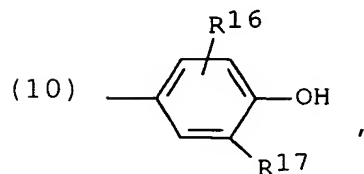
in which R^{11} is halogen or lower alkyl, and R^{12} is carboxy, lower alkanoyl, lower alkoxy-carbonyl, carbamoyl, lower alkylcarbamoyl, carboxy(lower)alkyl, (lower alkoxy-carbonyl)(lower)alkyl, carboxy(lower)-alkenyl or (lower alkoxy-carbonyl)(lower)alkenyl,



in which R^{13} is $-Cl$ or $-CH_3$, R^{14} is $-COOH$ or $-COOC_2H_5$, and X is $-CH_2-$,



in which R^{15} is $-COOH$ or $-COOC_2H_5$, and X is $-CH_2-$, or



in which R^{16} is lower alkyl or lower alkoxy, and

R^{17} is carboxy or lower alkoxy carbonyl,
or a prodrug thereof or a pharmaceutically acceptable
salt thereof.

5 2. A compound of claim 1, wherein

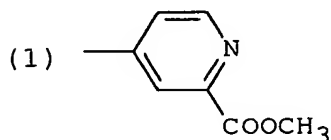
R^1 is hydrogen or chloride,

R^2 is hydrogen or benzyl,

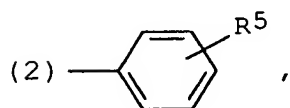
R^3 is hydrogen or methyl,

X is bond, $-\text{CH}_2-$ or $-\text{O}-$, and

10 Y is

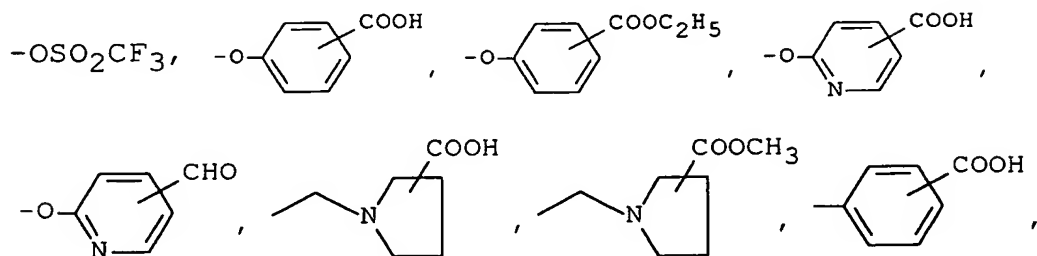


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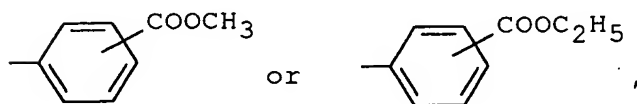


in which R^5 is $-\text{CH}_2\text{COOH}$, $-\text{CH}_2\text{COOC}_2\text{H}_5$, $-\text{CHO}$,

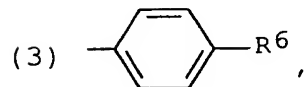
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25



30



in which R^6 is $-\text{OH}$, $-\text{COOH}$, $-\text{COOC}_2\text{H}_5$,

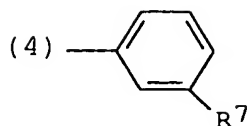
$-\text{OCH}_2\text{COOH}$ or $-\text{OCH}_2\text{COOC}_2\text{H}_5$,

35

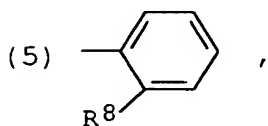
provided that (i) when R^6 is $-\text{OH}$, then X is $-\text{CH}_2-$,

(ii) when R^6 is $-\text{COOH}$, then R^1 is $-\text{H}$,
or

(iii) when R^6 is $-\text{COOC}_2\text{H}_5$, $-\text{O}-\text{CH}_2-\text{COOH}$ or
 $-\text{O}-\text{CH}_2-\text{COOC}_2\text{H}_5$, then X is $-\text{O}-$,

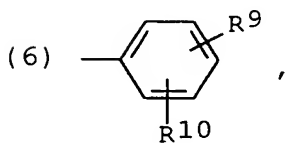




in which R^7 is $-\text{OH}$, $-\text{COOH}$, $-\text{COOC}_2\text{H}_5$,
 $-\text{O}-\text{CH}_2-\text{COOH}$ or $-\text{O}-\text{CH}_2-\text{COOC}_2\text{H}_5$, and
 X is $-\text{CH}_2-$,

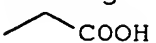
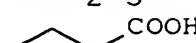


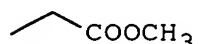
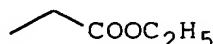
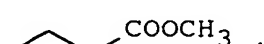
in which R^8 is $-\text{OH}$, $-\text{COOH}$, $-\text{COOC}_2\text{H}_5$,
 $-\text{O}-\text{CH}_2-\text{COOH}$ or $-\text{O}-\text{CH}_2-\text{COOC}_2\text{H}_5$,

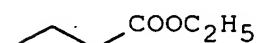
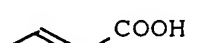

provided that when R^8 is $-\text{OH}$,
 $-\text{O}-\text{CH}_2-\text{COOH}$ or $-\text{O}-\text{CH}_2-\text{COOC}_2\text{H}_5$,
then R^3 is $-\text{CH}_3$,





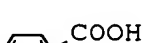
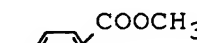
in which R^9 is $-\text{OH}$, , $-\text{CF}_3$, $-\text{O}-\text{CH}_2-\text{CH}_2-\text{OH}$,
 $-\text{O}-\text{CH}_2-\text{OCH}_3$, $-\text{O}-\text{CH}_2-\text{COOH}$, $-\text{O}-\text{CH}_2-\text{COOC}_2\text{H}_5$, $-\text{O}-\text{C}_6\text{H}_5$,
 $-\text{NO}_2$, $-\text{NH}_2$, $-\text{NHCH}_3$, $-\text{NH}-\text{CH}_2-\text{CH}_2-\text{CH}_3$, $-\text{NH}-\text{CH}_2-\text{CH}_2-\text{OH}$,
 $-\text{NH}-\text{CH}_2-\text{CH}_2-\text{OCH}_3$, $-\text{NH}-\text{CH}_2-\text{CH}_2-\text{OH}$, $-\text{NHCOOCH}_3$, $-\text{NHCOC}_2\text{H}_5$,
 $-\text{NHCOCH}_3$, $-\text{NHCO}-\text{C}_6\text{H}_5$, $-\text{NHSO}_2\text{CH}_3$, $-\text{SCH}_3$ or
, and

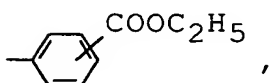
R^{10} is $-\text{COOH}$, $-\text{CHO}$, $-\text{COOCH}_3$, $-\text{COOC}_2\text{H}_5$, $-\text{CONH}_2$,
 $-\text{CONHCH}_3$, $-\text{CONHC}_2\text{H}_5$, , ,

, , ,

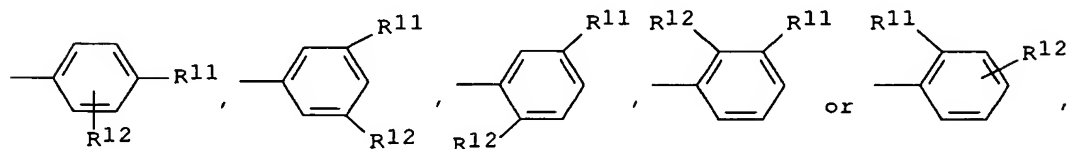
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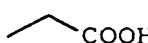
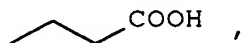
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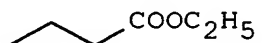
(7)

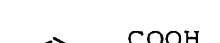





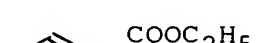

in which R^{11} is $-\text{F}$, $-\text{Cl}$ or $-\text{CH}_3$, and

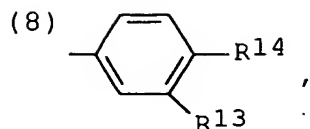
R^{12} is $-\text{COOH}$, $-\text{CHO}$, $-\text{COOCH}_3$, $-\text{COOC}_2\text{H}_5$, $-\text{CONH}_2$,

$-\text{CONHCH}_3$, $-\text{CONHC}_2\text{H}_5$, , ,

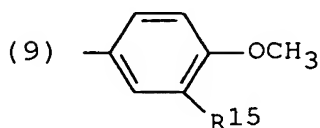
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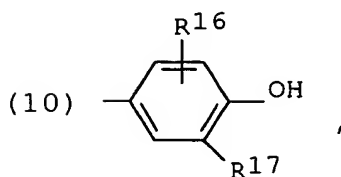
 or ,



in which R^{13} is $-Cl$ or $-CH_3$,
 R^{14} is $-COOH$ or $-COOC_2H_5$, and
 X is $-CH_2-$,

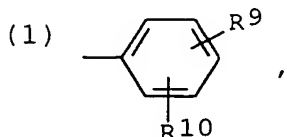






in which R^{15} is $-COOH$ or $-COOC_2H_5$, and
 X is $-CH_2-$, or

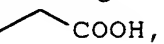



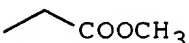

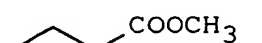
in which R^{16} is $-CH_3$ or $-OCH_3$, and
 R^{17} is $-COOH$, $-COOCH_3$ or $-COOC_2H_5$.

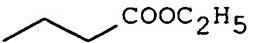
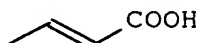

3. A compound of claim 2, wherein
 Y is





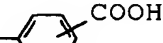

in which R^9 is $-OH$, , $-CF_3$, $-OCH_2CH_2OH$,
 $-OCH_2COCH_3$, $-OCH_2COOH$, $-OCH_2COOC_2H_5$, $-O$ -,
 $-NO_2$, $-NH_2$, $-NHCH_3$, $-NHCH_2CH_2CH_3$, $-NHCH_2CH_2OH$,
 $-NHCH_2CH_2OCH_3$, $-NHCH_2CH_2OH$, $-NHCOOCH_3$, $-NHCOC_2H_5$,
 $-NHCOCH_3$, $-NHCO$ -, $-NHSO_2CH_3$, $-SCH_3$ or
, and

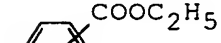
R^{10} is $-\text{COOH}$, $-\text{CHO}$, $-\text{COOCH}_3$, $-\text{COOC}_2\text{H}_5$, $-\text{CONH}_2$,
 $-\text{CONHCH}_3$, $-\text{CONHC}_2\text{H}_5$, , ,

, , ,

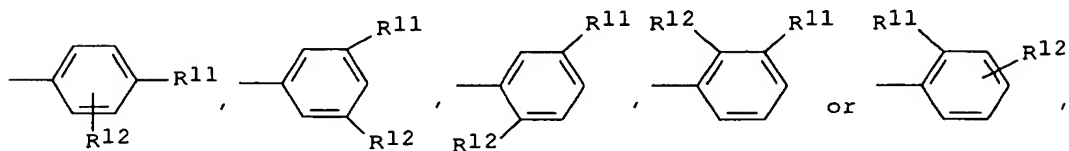
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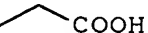

, or

(2)

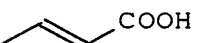

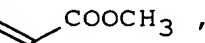



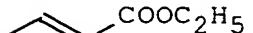

in which R^{11} is $-\text{F}$, $-\text{Cl}$ or $-\text{CH}_3$, and

R^{12} is $-\text{COOH}$, $-\text{CHO}$, $-\text{COOCH}_3$, $-\text{COOC}_2\text{H}_5$, $-\text{CONH}_2$,

$-\text{CONHCH}_3$, $-\text{CONHC}_2\text{H}_5$, , ,

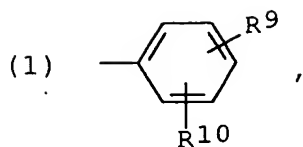
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 or .

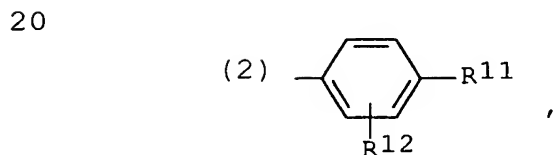
4. A compound of claim 3, wherein

Y is



5 in which R^9 is $-\text{OH}$, $-\text{OCH}_2\text{CH}_2\text{OH}$, $-\text{OCH}_2\text{OCH}_3$,
 $-\text{OCH}_2\text{COOH}$, $-\text{OCH}_2\text{COOC}_2\text{H}_5$, $-\text{O}-\text{C}_6\text{H}_5$, $-\text{NH}_2$, $-\text{NHCH}_3$,
 $-\text{NHCH}_2\text{CH}_3$, $-\text{NHCH}_2\text{CH}_2\text{OH}$, $-\text{NHCH}_2\text{CH}_2\text{OCH}_3$, $-\text{NHCH}_2\text{CH}_2\text{OH}$,
 10 $-\text{NHCOOCH}_3$, $-\text{NHCOC}_2\text{H}_5$, $-\text{NHCOCH}_3$, $-\text{NHCO}-\text{C}_6\text{H}_5$,
 $-\text{NHSO}_2\text{CH}_3$ or $-\text{C}_6\text{H}_5$, and

15 R^{10} is $-\text{COOH}$, $-\text{COOCH}_3$, $-\text{COOC}_2\text{H}_5$, $-\text{CONH}_2$,
 $-\text{CONHCH}_3$, $-\text{CONHC}_2\text{H}_5$, $-\text{CH}=\text{CHCOOH}$ or $-\text{CH}=\text{CHCOOH}$,
 or



in which R^{11} is $-\text{CH}_3$, and
 25 R^{12} is $-\text{COOH}$, $-\text{COOCH}_3$, $-\text{COOC}_2\text{H}_5$, $-\text{CONH}_2$,
 $-\text{CONHCH}_3$, $-\text{CONHC}_2\text{H}_5$, $-\text{CH}=\text{CHCOOH}$ or $-\text{CH}=\text{CHCOOH}$.

5. A compound of claim 4, which is selected from a group
 30 of

- (1) 2-Amino-5-[[4-[2-[[(2R)-2-(3-chlorophenyl)-2-hydroxyethyl]amino]ethyl]phenyl]sulfonyl]benzoic acid,
 (2) 5-[[4-[2-[[(2R)-2-(3-Chlorophenyl)-2-hydroxyethyl]amino]ethyl]phenyl]sulfonyl]-2-
 35

(methylamino)benzoic acid,

(3) 5-[[4-[2-[[(2R)-2-(3-Chlorophenyl)-2-hydroxyethyl]amino]ethyl]phenyl]sulfonyl]-2-[(methylsulfonyl)amino]benzoic acid,

5 (4) 5-[[4-[2-[[(2R)-2-(3-Chlorophenyl)-2-hydroxyethyl]amino]ethyl]phenyl]sulfonyl]-2-(propionylamino)benzoic acid,

(5) 5-[[4-[2-[[(2R)-2-(3-Chlorophenyl)-2-hydroxyethyl]amino]ethyl]phenyl]sulfonyl]-2-[(2-hydroxyethyl)amino]benzoic acid,

10 (6) 5-[[4-[2-[[(2R)-2-(3-Chlorophenyl)-2-hydroxyethyl]amino]ethyl]phenyl]sulfonyl]-2-hydroxy-N-methylbenzamide,

(7) [4-[[4-[3-[[(2R)-2-(3-Chlorophenyl)-2-hydroxyethyl]amino]propyl]phenyl]sulfonyl]-phenoxy]acetic acid,

15 (8) 2-Hydroxy-5-[[4-[2-[[(2R)-2-hydroxy-2-phenylethyl]amino]ethyl]phenyl]sulfonyl]benzoic acid,

20 (9) 5-[[4-[3-[[(2R)-2-(3-chlorophenyl)-2-hydroxyethyl]amino]propyl]phenyl]sulfonyl]-2-hydroxybenzoic acid,

(10) 2-[[4-[[(2R)-2-[[(2R)-2-(3-Chlorophenyl)-2-hydroxyethyl]amino]propyl]phenyl]sulfonyl]-5-propylbenzoic acid,

25 (11) 4-[[4-[[(2R)-2-[[(2R)-2-(3-Chlorophenyl)-2-hydroxyethyl]amino]propyl]phenyl]sulfonyl]-3-biphenylcarboxylic acid, and

(12) (2Z)-3-[2-[[4-[[(2R)-2-[[(2R)-2-(3-Chlorophenyl)-2-hydroxyethyl]amino]propyl]phenyl]sulfonyl]-5-methylphenyl]acrylic acid,

30

or a pharmaceutically acceptable salt thereof.

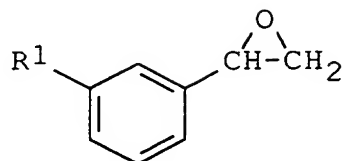
6. A process for preparing a compound of claim 1,

35 or a salt thereof,

which comprises,

(i) reacting a compound [II] of the formula:

5

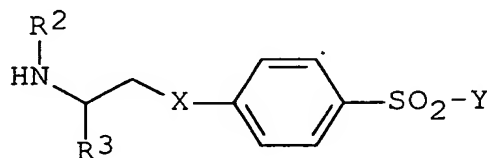


[II]

wherein R^1 is defined in claim 1,

10

with a compound [III] of the formula:

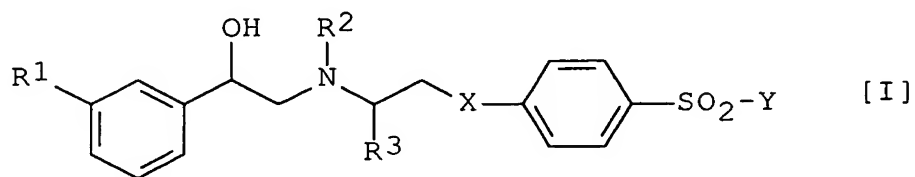


[III]

15

wherein R^2 , R^3 , X and Y are each as defined in claim 1,
or a salt thereof, to give a compound [I] of the
formula:

20



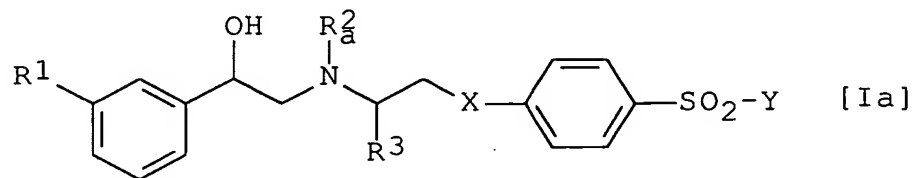
[I]

25

wherein R^1 , R^2 , R^3 , X and Y are each as defined in
claim 1,
or a salt thereof,

(ii) subjecting a compound [Ia] of the formula:

30

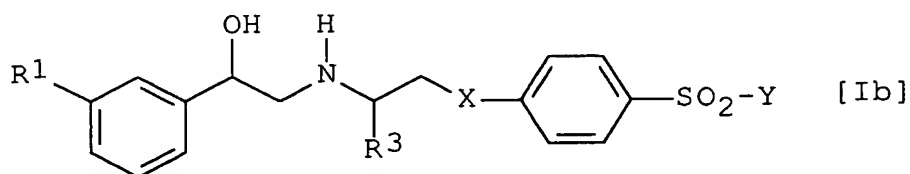


[Ia]

35

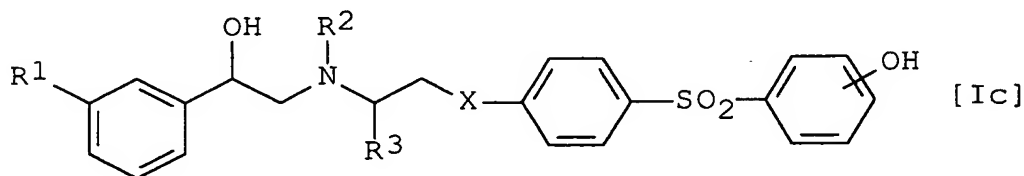
wherein R^1 , R^3 , X and Y are each as defined in claim 1,
and

R_a^2 is an amino protective group,
or a salt thereof, to elimination reaction of the amino
protective group, to give a compound [Ib] of the
formula:



wherein R^1 , R^3 , X and Y are each as defined in claim 1,
or a salt thereof, and

(iii) reacting a compound [Ic] of the formula:



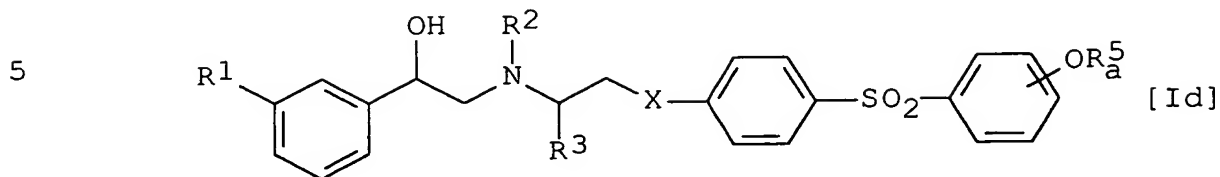
wherein R^1 , R^2 , R^3 and X are each as defined in claim 1,
or a salt thereof with a compound [IV] of the formula:



wherein R_a^5 is lower alkyl optionally substituted with
carboxy or lower alkoxy carbonyl; phenyl
substituted with lower alkanoyl, carboxy
or lower alkoxy carbonyl; or pyridyl
optionally substituted with lower
alkanoyl, carboxy or lower alkoxy carbonyl,
and

Z is halogen,

or a salt thereof to give a compound [Id] of the formula:



wherein R^1 , R^2 , R^3 and X are each as defined in claim 1,
 10 and
 R_a^5 is as defined above,
 or a salt thereof.

7. A pharmaceutical composition which comprises, as an
 15 active ingredient, a compound of claim 1 or a pharmaceutically acceptable salt thereof in admixture with pharmaceutically acceptable carriers or excipients.
8. Use of a compound of claim 1 or a pharmaceutically
 20 acceptable salt thereof for the manufacture of a medicament.
9. A compound of claim 1 or a pharmaceutically acceptable
 25 salt thereof for use as a medicament.
10. A compound of claim 1 or a pharmaceutically acceptable
 salt thereof for use as selective β_3 adrenergic receptor agonists.
- 30 11. A method for the prophylactic and/or the therapeutic treatment of pollakiuria or urinary incontinence which comprises administering a compound of claim 1 or a pharmaceutically acceptable salt thereof to a human being or an animal.